

Orchard Hills Water Filtration Plant

Sydney
WATER

Orchard Hills Water Filtration Plant is one of nine water filtration plants that supply fresh drinking water to homes and businesses in Sydney, the Illawarra and the Blue Mountains.

This plant supplies 70 million litres (ML) of the 1.4 billion litres of fresh drinking water Sydney Water supplies a day. It can supply up to 215 ML.

The plant treats water from the protected catchment of Warragamba Dam. The Sydney Catchment Authority manages both the dam and the catchment area.

Sydney Water treats the water to meet the *Australian Drinking Water Guidelines* before supplying it to Penrith, St Marys and the lower Blue Mountains.

Rotating fine screen

On entering the plant, the raw water passes through a rotating fine screen that captures fish, eels, leaves and debris.

Mixing chamber

In the mixing chamber, we add chemicals such as lime, ferric chloride and polymers to help the filtering process. These chemicals cause small particles to group together (coagulate), so that they are easier to remove in the filters.

Dual media filters

The water passes through a 1.5 metre deep layer of anthracite (crushed coal) on layers of sand and gravel. Particles are trapped in the anthracite layer and water flows out through the bottom of the filter to the clear water tank.

Providing drinking water to
Penrith, St Marys and the lower
Blue Mountains

Cleaning the filters

We regularly backwash the filters to keep them working efficiently. Air is scoured from the bottom to break up the compacted filter media and dislodge flocculated particles from the media. Clean water flows in from the bottom of the filter bed and washes the particles out.

Filter backwash lagoon

We send the backwash water from the top of the filter to lagoons to settle. Particles sink to the bottom of the lagoon and the clear water on top returns to the treatment process at the coagulation stage. The particles from the bottom of the lagoon are beneficially re-used.

Clear water tank and disinfection

In the clear water tank, we disinfect the water with chlorine gas. We can also add lime if needed to adjust the pH level.

We add fluoride as directed by NSW Health (*Fluoridation of Public Water Supplies Act 1957*) to improve dental health.

Drinking water is tested at every stage of the process: in the catchment, before, during and after treatment, in distribution pipes and at customers' taps. This testing ensures drinking water meets the *Australian Drinking Water Guidelines*.

Reservoirs

The treated drinking water is pumped to two large on-site reservoirs, from where it can supply smaller reservoirs throughout the community.

Laboratory

The Orchard Hills Water Filtration Plant includes a laboratory for water quality testing. Water is tested for colour, turbidity, pH, residual chlorine and fluoride.

